

**Technical Panel
of the
Nebraska Information Technology Commission**

Tuesday, February 8, 2005 - 9:00 a.m.
Varner Hall - Board Room
38th and Holdrege, Lincoln, Nebraska
[Meet-Me-Bridge phone number available for agenda item 6, see below.]

AGENDA

Meeting Documents:

Click the links in the agenda
or [click here](#) for all documents (X.X MB - xx pages)

1. Roll Call and Meeting Notice
2. Public Comment
3. Approval of Minutes* - [January 11, 2005](#)
4. Standards and Guidelines
 - Recommendation to the NITC*

Groupware Architecture	Lotus Notes Standards for State Government Agencies (Revised) [Document available at the meeting]
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5. Project Reviews*
 - State Records Board Grants
 - [Online Property Tax Payment System \(6 Counties\) | Response to request for additional information](#)
 - [Kearney County Enhanced Web Page \(Kearney County, et al.\) | Response to request for additional information](#)
 - [SSC Electronic Filing System \(South Sioux City\) | Response to request for additional information](#)
6. Discussion - [White Paper: "Converting distance learning networks to a high bandwidth flexible infrastructure"](#)
 - This agenda item will begin at 9:30 a.m.
 - Meet-Me-Bridge phone number: 402-472-6295
7. Regular Informational Items and Work Group Updates (as needed)
 - Accessibility of Information Technology Work Group
 - CAP
 - Security Work Group
 - Statewide Synchronous Video Network Work Group
8. Other Business
9. Next Meeting Date

Tuesday, March 8, 2005

10. Adjourn

* Denotes Action Item

NITC and Technical Panel Websites: <http://www.nitc.state.ne.us/>

Meeting notice posted to the NITC Website: 19 JAN 2005

Meeting notice posted to the [Nebraska Public Meeting Calendar](#): 19 JAN 2005

Agenda posted to the NITC Website: 3 FEB 2005

TECHNICAL PANEL

Nebraska Information Technology Commission
Tuesday, January 11, 2005, 9:00 a.m.
Varner Hall, 3835 Holdrege
Lincoln, Nebraska
PROPOSED MINUTES

MEMBERS PRESENT:

Mike Beach, Nebraska Educational Telecommunications Commission
Brenda Decker, Department of Administrative Services, State of Nebraska
Christy Horn, University of Nebraska, Compliance Officer
Steve Schafer, Office of the Chief Information Officer, State of Nebraska
Walter Weir, University of Nebraska

ALTERNATES PRESENT:

Rick Becker, Government I.T. Manager, Chief Information Officer
Rick Golden, University of Nebraska
Steve Henderson, Department of Administrative Services

CALL TO ORDER, ROLL CALL, AND MEETING NOTICE

Mr. Weir called the meeting to order at 9:05 a.m. The meeting notice was posted to the Nebraska Public Meeting Calendar and the NITC web sites on December 15, 2004 and that the meeting agenda was posted to the NITC web site on January 7, 2005. A quorum was present at the time of roll call.

PUBLIC COMMENT

There was no public comment.

APPROVAL OF DECEMBER 14, 2004 MINUTES

Mr. Weir corrected a grammatical error under I.T. Project Review Process Discussion section.

Ms. Brenda moved to approve the [December minutes](#) as corrected. Mr. Beach seconded the motion. Roll call vote: Beach-Yes, Decker-Yes, Schafer-Yes, and Weir-Yes. Motion was carried.

STANDARDS AND GUIDELINES – LOTUS NOTES STANDARDS FOR STATE GOVERNMENT AGENCIES

The standard had been discussed at last meeting and tabled until further information was provided on generic ID's. Ron Ritchey, Jerry Heilen, and Kevin Keller were present to provide information and answer questions. Some of the panel members concerns were traceable messages, authentication and auditing, as well as, balancing and satisfying agencies business requirements, practices and needs.

Ms. Horn arrived at 9:12 a.m.

The question was raised as to whether there will be a separate standard developed for basic email. It was suggested to address this at a later time.

Mr. Schafer moved to recommend the [Lotus Notes Standards for State Government Agencies](#) with the following change in Section 1.3: After "Generic notes IDs are not acceptable", insert "unless the system provides for authentication and auditing to ensure individual accountability." Ms. Decker seconded. Roll call vote: Weir-Yes, Schafer-Yes, Horn-Yes, Decker-Yes, and Beach-Yes. Motion was carried.

The Work Group was commended on their efforts.

PROJECT REVIEWS

State Records Board Grant Applications

Discussions occurred regarding the information needed for the technical review process of grants and other projects. It was recommended to communicate this to the State Records Board.

Members discussed the need for additional information on these grants, including a more detailed budget.

Additional comments regarding these grants:

[Online Property Tax Payment System](#)

- Possible explore software packages that could be purchased and customized rather than develop this in-house.

[Kearney County Enhanced Web Page](#)

- Are there dollar savings?
- Is there coordination with GIS regarding Internet mapping?

[SSC Electronic Filing System](#)

- There was no database search engine documented.
- A back-up system or process was not mentioned.
- Who is the software provider?
- No minimum configuration of hardware equipment was documented.

The reviews were tabled until the February meeting.

REGULAR INFORMATIONAL ITEMS AND WORK GROUP UPDATES

Accessibility, Christy Horn. Web technology communications are continuing with university departments and offices. At the February meeting, Ms. Horn will provide feedback on web site assessment tools. Mr. Schafer stated that the state's Webmasters Group has been discussing accessibility tools as well.

CAP, Brenda Decker. The group is meeting today to discuss scheduling software for video and the contract for Grand Island & Scottsbluff DS3 connection. At the meeting, there will also be a presentation on scheduling software by Renovo.

Security Work Group, Steve Schafer. The Work Group will be meeting next week. Agenda items include: 1) revamping the incident reporting procedure (want it to be part of agencies operation); 2) Spyware (should state government be doing anything with this); and 3) finalizing the RFP for the security audit. Mr. Weir informed the panel that on Feb 9th, there will be a videocast on Spyware.

Statewide Video Synchronous Work Group, Mike Beach. Scheduling discussions will occur at the CAP meeting today.

OTHER BUSINESS

There was no other business.

NEXT MEETING DATE AND TIME

The next meeting of the NITC Technical Panel will be held on Tuesday, February 8th at 9 a.m. at Varner Hall, 3835 Holdrege, in Lincoln, Nebraska.

Ms. Decker moved to adjourn the meeting. Mr. Schafer seconded the motion. All were in favor. Motion was carried.

The meeting adjourned at 10:20 a.m.

Meeting minutes were taken by Lori Lopez Urdiales and reviewed by Rick Becker of the Office of the CIO/NITC.

12-29-2004

Mr. John Gale, Chairman of
Nebraska State Records Board
State Capitol, Suite 2300
Lincoln, NE. 68509

Dear Mr. Gale:

I am writing to you and the Board asking for you to consider the attached grant application On an Online Property Tax Payment System. Six counties are to serve as pilot counties and are mentioned in the application.

The software, hardware, implementation and updating will be done by Nebraska @ Online. Nebraska @ On Line has access to what has been done in most if not all of the counties in Iowa. They are the most experienced, to my knowledge, of the other companies providing on line payments in this state. The most active competitor has only four to six counties, and an other one has concentrated their efforts on the West Coast.

Other benefits to county government and to the consumer would be:

- A. This service would be free unlike another system in the state which charges counties around 100.00 to 150.00 per month.
- B. The data files would be updated nightly for no charge to the county unlike some competitors. Some treasurer's offices manually update records from a report
- C. Citizens would be able to pay their taxes any day of the week or any hour of the day.
- D. Funds would be electronically transferred to the county which means more efficiency. Staff would not need to handle paper checks.
- E. Future enhancements would allow lending institutions to make batch for the accounts they escrow. I think, in time, most, if not all Nebraska counties will be on this system. I have heard some rumbling concerning the 100.00 to 150.00 per month charge.

Mr. Gale, thanking you and the Board in advance for your time and consideration .

Respectfully yours,

Bob Dahms, Seward County Treasurer

Nebraska State
Records Board
State Capitol, Suite 2300
Lincoln, NE 68509

John Gale
Chairman
(402) 471-4070
<http://www.nol.org>



**APPLICATION FOR STATE RECORDS BOARD GRANT
TO IMPROVE ACCESS TO PUBLIC INFORMATION
(Local Government Grant Application)**

Cities and Counties desiring grants from the Nebraska State Records Board for projects to create or improve electronic access to government information or services should complete this application and follow any procedures outlined in this application and any accompanying materials.

I. Grant Summary

1. Name of entity applying for grant Buffalo, Clay, Dawson, Hamilton, Pierce, Seward Counties

2. Title of project Online Property Tax Payment System

3. Brief Description of Project

The application will allow citizens and businesses the ability to pay their property taxes online. Users will enter identifying information such as name, address or parcel number to obtain their tax information. They will then select payments to be made, enter credit card or electronic check information, and submit payment through a secure transaction system. The user will be provided a receipt or confirmation screen for their records.

3. Grant request amount \$ \$25,000.00 (\$25,000 limit for collaborative grants, \$10,000 limit for single jurisdiction grants)

4. Will there be a fee for accessing records associated with this project? Yes

5. If yes, provide any statutory reference or authorization for the fee Section 13-609

NSRB Grant Application

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II. Grant Detail

1. Please describe the project in detail (you may attach this description)

See attachment.

2. Please describe whom the beneficiary or recipient of this service will be and projected activity for access or use of the proposed service

The recipient of the the service will be any citizen or business who owes a property tax liability. The application will allow them to pay for it online via a credit card or electronic check.

3. Timeline for implementation (specific completion date must be provided, grant funds lapse if not expended prior to completion date)

We expect the application to be live for use by September 1, 2005.

4. Subdivision contribution to project (labor, equipment etc.)

The six county treasurers will contribute their time and knowledge to help develop how the application will function. They will determine the business rules that must be followed.

5. Is other funding available for this project (explain)?

No. There are no other grants available. Counties in general do not have the funds to pay for development of an application such as this.

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6. Why is the grant money needed for the project, and, if applicable, how will the service be sustained once the grant money is expended?

The grant money will be used for the initial development of the application. A convenience fee will be charged to the user for continued support of the application. The user will also pay any credit card and ACH fees associated with the transaction.

7. Please describe how this project will enhance the delivery of government services or access to those services (you may attach a separate sheet if needed)

Allowing people the ability to make tax payments online will make it more convenient for them. They will be able to perform the transaction at any time and from any place.

8. Please describe how this project will improve the efficiency of government operations (attach additional pages if needed)

Since the transfer of money will be done electronically through the application, it will allow for a more streamlined use of staff time. County staff won't have to handle and process paper checks. Counties also don't currently accept credit cards and this will create another avenue for them to accept payments.

9. Please describe any collaborative effort among multiple jurisdictions or political subdivisions related to this project (if applicable, attach additional pages if needed)

Six counties will participate in the initial phase of the project. Other counties will be offered the opportunity to use the system after the first tax payment period. The six counties are: Buffalo, Clay, Dawson, Hamilton, Pierce and Seward.

10. Please provide information on who will complete the project (in house personnel, outside contractor, combination of both, etc.)

Nebrask@ Online will do the software development while the six county treasurers will offer their expertise in developing the business rules that the application must follow.

11. Does the project involve the licensing, permitting or regulation of businesses, if yes then explain how the project or service will allow integration with the State of Nebraska's Business Portal and the one-stop online business registration system.

This project does not involve the licensing, permitting or regulation of business.

III. Technical Information

1. Describe the hardware, software, and communications needed for this project and explain why these choices were made.

Nebrask@ Online will host the application at the NIC data center as part of the board-approved central hosting environment. Nebrask@ Online will also provide the hardware and data communications. They will also develop the software application, which is expected to be an adaptation of similar systems currently operated by the NIC affiliates in Iowa, Kansas and other states.

2. Address any technical issues with the proposed technology including:

- **Conformity with generally accepted industry standards. Projects which interface with state systems (such as distance learning systems) should also address NITC technical standards and guidelines.**
- **Compatibility with existing institutional and/or statewide infrastructure.**
- **Reliability, security and scalability (future needs for growth or adaptation).**

The application will be developed using generally accepted industry standards. It will be developed to conform with the section 508 accessibility standards. The application will be developed with scalability in mind to allow for other counties to be added to the system in the future.

3. Describe how technical support will be provided.

Technical support for the application will be provided by Nebrask@ Online staff. The application will be written in a way so that if errors of a technical nature occur, the user will be directed to contact Nebrask@ Online. County treasurers will address any tax payment or policy questions that users may have.

4. Describe How the Project will comply with the State's Technology Access Clause
<http://www.nitc.state.ne.us/standards/accessibility/tacfinal.htm>

The application will be written in a way that will allow users with disabilities to use the system. Nebraska@ Online has trained staff who are knowledgeable about section 508 accessibility standards and have considerable experience in developing accessible web sites and software applications.

IV. CONTACT INFORMATION, SIGNATURE

Contact person for any questions regarding this application _____

phone # _____ E-mail _____

Signed this _____ day of _____, _____

Signature

Title

Please Return to:

State Records Board
Suite 2300, State Capitol
P.O. Box 94608
Lincoln, NE 68509-4608

(revised 11/16/04)

Online Property Tax Payment System Pilot Project

The Online Property Tax Payment System will allow citizens and businesses the ability to pay property taxes online. Initially, the system will only allow for payments for an individual county. Future enhancements may include payments of property taxes over multiple counties and batch payments by financial institutions. These functionalities will not be part of the pilot project.

Six Nebraska counties will participate in the Online Property Tax Payment System Pilot Project. These counties include: Buffalo, Clay, Dawson, Hamilton, Pierce and Seward. Nebrask@ Online will develop a system that can be used with any back-end system that a county uses. A \$25,000 State Records Board grant will be used to fund the pilot project. Once a functioning application has been developed and proof of concept has been established, the system would be made available to interested counties throughout the state.

The system will also have a reporting component available for county treasurers to use. The report will include information about the property, the owner and the amount of the payment. This will be developed in response to the needs of County Treasurers.

There will be no direct cost to the counties for this application. The user will have the ability to pay for the transaction with either a credit card or by electronic check. The system will incorporate a payment gateway that allow payment of taxes due plus convenience fees that will be paid by the user of the system. The user would pay any credit card/ACH fees and a fee yet to be determined that would be paid to Nebrask@ Online for development of future upgrades and maintenance of the system.

The system will be similar to the one developed in Iowa which can be viewed at http://www.iowatreasurers.org/county_locator.cfm?ID=1

County Contacts

Jean Sidwell
Buffalo County Treasurer
(308) 236-1250
treasurer@buffalogov.org

Jan Stratman
Clay County Treasurer
(402) 762-3505
clay.county@dmv.state.ne.us

Sharon Wood
Dawson County Treasurer
(308) 324-3241

Bobby Parks
Hamilton County Treasurer
(402) 694-2291
hamcto@hamilton.net

Richard Anderson
Pierce County Treasurer
(402) 329-6335

Bob Dahms
Seward County Treasurer
(402) 643-4574
stubby68434@yahoo.com

Nebrask@ Online Contacts

Dan Brown
Director of Integrated Services
(402) 471-0828
danb@nol.org

Megan Lyons
Marketing Associate/Web Designer
(402) 471-7838
megan@nol.org

**Follow-up to the Technical Panel Meeting Jan 11, 2005
Online Property Tax Payment System**

The Technical Panel of the NITC would like more information about the following:

Analysis of how much work it will take to modify the Iowa system.

We estimate that it will take between 275 and 350 hours of work to adapt the Iowa system to Nebraska's needs. Please refer to the attachment for more details.

Be more specific about accessibility.

The application will be tested for accessibility by using Wave 3.0 (<http://www.wave.webaim.org/index.jsp>) before being placed in production. NOL development tools also provide accessibility testing during the implementation (programming) process.

A breakdown of how the grant money will be used. (A detailed budget)

See Attachment

What platform will the application be on?

Sun Solaris 9 Operating System and an Apache Server

How much bandwidth does the NIC Corporate Data Center have?

100Mbit / second

What database will be used for the application?

MySQL

What programming language will the application be written in?

PHP

Security

The payment processing system will run on a secure encrypted SSL connection.

What accepted software development standards do we use?

The software we build is developed in a way that conforms to usability standards. We follow the NIC Corporate Project Management Life Cycle Methodology when developing our software.

Compare NOL's approach to other vendors.

The system that we propose will be offered at no charge to the counties while other vendors charge the county a fee for using their solution. We will offer the user the option of paying via a credit card or electronic check. The electronic check will offer a lower cost option for the user so we anticipate higher adoption rates because of it. Other solutions only allow for payment by credit card.

Our system will also be designed so it will work with any back-end system that a county may have. Future enhancements of the software will include the ability to pay for multiple parcels from multiple counties. Other systems only allow users to pay in one county at a time. We will also add the ability for batch payments of escrow accounts by financial institutions.

Online Property Tax Payment System Budget

Hours are billed at \$75.00/hour

Process	Estimated Number of Hours	Amount
Requirements Gathering	50	\$3,750
Tasks include one or more on-site meetings and follow-up calls with each of the pilot counties to gain an understanding of business rules, process flow, back-end integration requirements and desired features. Pilot counties will be asked to evaluate similar applications from other states for comparison purposes. Results of this research will be delivered as a complete set of system requirements.		
Prototype Development	30	\$2,250
Tasks include development of design templates for application Web pages; construction of a Web prototype that demonstrates the look and feel and process flow for the application. The prototype will be provided for review and testing by the pilot counties, and revised as necessary. The prototype constitutes the deliverable for this segment of the project.		
System Specifications	40	\$3,000
Based on the system requirements and Web prototype, a detailed set of technical specifications will be developed to guide implementation (programming).		
Coding	160	\$12,000
Tasks include assessment of property tax payment systems from other states to determine the degree of code reusability, and the programming work to customize for use in Nebraska.		
Testing	50	\$3,750
Testing will include internal (NOL) and external (pilot counties) testing of the system. Revisions will be made as needed to deliver the application for production.		
Total	330	\$24,750

State Records Board Grant Application

To Improve Access to Public Information

Agencies desiring grants from the Nebraska State Records Board for projects to improve access to state government information should complete this application and follow any procedures outlined in this application and any accompanying materials.

1. Name of agency applying for grant.

County of Kearney, Nebraska

Project partners:

City of Minden

Villages of Axtell, Heartwell, Norman, and Wilcox

2. Title of project

Kearney County Enhanced Web Page

3. Title or brief description of the project

The project will expand and enhance services to the citizens, businesses, agencies, county departments, and cities/villages located in Kearney County by expanding web-based functionality for information dissemination, retrieval and public service. Specifically, the new system will provide more detailed information in a web-based format concerning property information, roads information and planning and zoning information.

3. Grant request amount

\$25,000

4. Will there be a fee for accessing records associated with this project?

No

5. If yes, provide any statutory reference or authorization for the fee.

N/A

II Grant Detail

1. Please describe the project in detail.

Currently, Kearney County and its partners store public information concerning property tax assessment, roads and planning/zoning in a variety of digital and paper databases. Gradually, the County is converting these data digitally to make storage, retrieval and analysis more efficient. However, dissemination of this information to the general public, business and other agencies both within and outside the county requires the requestor to either visit the particular county office, or have county staff generate the information and ship it out.

The current state of affairs is rapidly becoming unworkable due to the growth of the county creating a subsequent increased demand for information from the general public. In addition, state and federal agencies are increasingly demanding information concerning the status of the counties variety of programs. This is occurring under the cloud of ever decreasing budgets to provide more and more information services.

Goals:

Provide faster, easier and more cost efficient centralized access to property assessment, roads and planning/zoning information for the general public, businesses, county administration and employees.

Enhance communication between partners and state and federal agencies.

Leverage investment made in GIS technology by the Kearney County Assessor and Kearney County Roads Department.

Activities:

Design and create an enhanced NOL web page that includes Internet Mapping System capability utilizing available GIS data currently housed in separate, unconnected departments.

Integrate existing Kearney County GIS data and any suitable GIS data from other local and state agencies (Tri-Basin Natural Resource District, Nebraska Department of Roads, etc.).

Train county staff, partner staff and general public in the use of the enhanced web site.

Expected outcomes:

All citizens, businesses and agencies in Kearney County will benefit from implementation of this enhanced web site:

Faster, more efficient response to customer information requests concerning property assessment, roads and planning/zoning information.

Better communication between county departments and the public and also between county departments.

2. Please describe who the beneficiary or recipient of this service will be and projected activity for access or use of the proposed service.

Beneficiaries will include citizens and businesses of Nebraska as well as other government agencies in the state. Primary access to the system will be via the World Wide Web. Activities will include information retrieval concerning real estate values and assessment, planning/zoning and associated ordinances and roads data.

3. Timeline for implementation (specific completion date must be provide, grant funds lapse if not expended prior to completion date)

Implementation and completion by June 2005

4. Agency contribution to project (labor, equipment etc.)

Kearney County staff and partner staff will contribute labor to compilation and update of materials and information (this will be an ongoing contribution to maintain currency of the system). County and partner staff will also contribute to the education of the public through public announcements and “open houses”.

Kearney County has already made considerable investment (more than \$75,000) in the base GIS technology in each department.

5. Is other funding available for this project? (Explain.)

No. Budget cuts and constraints mean actual dollars are not available, however, Kearney County staff and partner staff will be contributing in-kind funds through labor resources.

6. Why is the grant money needed for the project, and, if applicable, how will the service be sustained one the grant money is expended?

This funding will establish the enhanced web page. The system will be designed in such a way that county staff may easily update both tabular, written and GIS data.

7. Please describe how this project will enhance the delivery of local agency services or access to those services.

Citizenry, businesses and government agencies will have direct access to up-to-date information via a 24/7 portal. Currently, information from each department may only be

accessed during office hours, necessitating a trip to the county office or a phone call. In addition, county staff must be available during that time to assist in information retrieval.

For example, currently, if one wishes to find out the zoning of a particular parcel, one must first contact the county assessor to find the correct legal description of the parcel, then contact the planning/zoning department to ascertain the correct zoning. More often than not, the planning/zoning administrator must make a trip to the assessor's office to check the real estate GIS system for additional information. With the enhanced web page, the user will be able to directly query the GIS for the correct parcel of land, and immediately view the planning/zoning map in relation to the parcel map online.

8. Please describe how this project will improve the efficiency of government operations

This project will significantly reduce both foot and telephone traffic to the county offices by both the general public, and government agencies. A secondary benefit is the reduction of time spent by staff members providing research to customer information requests.

9. Please describe any collaborative effort among multiple jurisdictions or political subdivisions related to this project

Kearney County: Assessor; Planning and Zoning; Sheriff; Emergency Management

City of Minden Planning Commission

Axtell's Planning Commission

Villages of Wilcox, Heartwell, and Norman's Planning Office

Tri-Basin NRD

Various State agencies requesting information (e.g., Department of Roads, NEMA, HHS, etc).

10. Please provide information on who will complete the project

Kearney County staff, with support from GIS Workshop, Inc., a Lincoln, NE based GIS services company.

11. Does the project involve the licensing, permitting or regulation of businesses, if yes then explain how the project or service will allow integration with the State of Nebraska's Business Portal and the on-stop online business registration system.

No

III Technical Information

1. Describe the hardware, software, and communications needed for this project and explain why these choices were made.

No additional hardware is required. Kearney County already utilizes ESRI GIS technology. ESRI GIS is the industry standard GIS software and is in use amongst nearly all Nebraska local, county and state entities. No additional communications capabilities are required.

2. Address any technical issues with the proposed technology including: Conformity with generally accepted industry standards. Projects which interface with state systems (such as distance learning systems) should also address NITC technical standards and guidelines. Compatibility with existing institutional and/or statewide infrastructure. Reliability, security and scalability (future needs for growth or adaptation).

The enhanced web page GIS will be designed and built with adherence to Nebraska state standards for GIS data. The digital map data has been developed in Nebraska State Plane Coordinate System, NAD83. There are no NITC technical standards and guidelines for GIS currently. GIS technology has been around since the 1970's, and has evolved to a point where the standard desktop software packages are very reliable. There are no security issues, although city administrators may decide to not post fresh water system data on the World Wide Web to guard against bio-terrorism attacks. ESRI Arcview GIS is completely scaleable, and can record data on millions of elements.

3. Describe how technical support will be provided

Kearney County currently uses GIS support services by GIS Workshop, Inc. The County staff will receive training from ESRI certified instructors on the use of the GIS. The staff will be encouraged to develop relationships within the county departments, and with the Nebraska GIS community as a whole through participation in the Nebraska GIS/LIS Association and Nebraska GIS Steering Committee.

IV. Contact Information, Signature

Contact person for any questions regarding this application

Kathryn Russell, Highway Superintendent kchwy@gtrmc.net

Kearney County Nebraska

1124 East 9th, Minden, NE 68959

Phone: 308-832-2854

Fax: 308-832-0401

Signed this _____ day of _____, _____

Please return to:
State Records Board
Suite 2300 State Capitol
P O Box 94608
Lincoln, NE 68509-4608

Mr. Becker,

This is the cost breakdown from our vendor.

1. GIS data development. Map digitizing of planning/zoning, etc. \$4,000
2. Data download and processing (aerial imagery, etc) \$1,000
3. Custom Java programming, custom HTML programming for following functionality:
 - property search via name, address, legal description
 - mailing address label creation
 - aerial imagery selection, etc
 - layer display (planning zoning, roads, parcels, etc) \$20,000.

To view a similar project go to:
<http://ims.lincoln.ne.gov/isa/parcel/>

"Design and create an enhanced NOL web page that includes Internet Mapping System capability utilizing available GIS data currently housed in separate, unconnected departments."

In other words, we will make assessor/real estate data available on the internet, put the aerial imagery on the internet, so people can access property info without calling the assessor. We will put the planning zoning map on the internet so people can access this without calling planning zoning to figure out the zoning on a property. See the example www link above.

"Integrate existing Kearney County GIS data and any suitable GIS data from other local and state agencies (Tri-Basin Natural Resource District, Nebraska Department of Roads, etc.)."

We will also integrate in other agencies data if they would like that digital map data put up on the internet. (NRD, floodplains, law enforcement, etc.)
Example: <http://dnrserver26.dnr.state.ne.us/website/doqviewer/viewer.htm>

I hope this is sufficient for the questions you have. If not please let me know.

Kathryn Russell
Zoning Adm/Hwy Supt/Floodplain Adm
Kearney County
1124 East 9th
Minden, NE 68959
308-832-2854

Nebraska State
Records Board
State Capitol, Suite 2300
Lincoln, NE 68509

John Gale
Chairman
(402) 471-4070
<http://www.nol.org>



**APPLICATION FOR STATE RECORDS BOARD GRANT
TO IMPROVE ACCESS TO PUBLIC INFORMATION
(Local Government Grant Application)**

Cities and Counties desiring grants from the Nebraska State Records Board for projects to create or improve electronic access to government information or services should complete this application and follow any procedures outlined in this application and any accompanying materials.

I. Grant Summary

1. Name of entity applying for grant City of South Sioux City, NE

2. Title of project SSC Electronic Filing System

3. Brief Description of Project

Purchase of an electronic filing system for City and public access to records.

3. Grant request amount \$ 10,000 (\$25,000 limit for collaborative grants, \$10,000 limit for single jurisdiction grants)

4. Will there be a fee for accessing records associated with this project? No

5. If yes, provide any statutory reference or authorization for the fee No

II. Grant Detail

1. Please describe the project in detail (you may attach this description)

See attached

2. Please describe whom the beneficiary or recipient of this service will be and projected activity for access or use of the proposed service

The beneficiary of this service will be all City of South Sioux City departments with future expansion to allow Public access through the City website.

3. Timeline for implementation (specific completion date must be provided, grant funds lapse if not expended prior to completion date)

Six months from award of grant

4. Subdivision contribution to project (labor, equipment, etc.)

Computers

Server

Labor: each department will provide staff to scan and electronically file documents.

Equipment/software maintenance

5. Is other funding available for this project (explain)?

\$10,000 has been included in the 2004-05 budget. Minimum cost of this project would be \$15,000 not including the City's contribution to the project.

NSRB Grant Application

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6. Why is the grant money needed for the project, and, if applicable, how will the service be sustained once the grant money is expended?

Because of current decreases in revenues, grant money would assist in completing this project.

The expense for sustaining this service will be included in the City's budget.

7. Please describe how this project will enhance the delivery of government services or access to those services (you may attach a separate sheet if needed)

Offices of the City of South Sioux City are currently located in various locations. Each department has files for its department. No master file system is available. To increase efficiency, an electronic filing system will allow all departments to access all file documents from their location and the Public to access records through the City's website. The Public currently has access through the City's website to agendas and minutes of the City Council and Committees. Such documents are listed by date. The electronic filing system would allow City personnel and the public to access records by word recognition and export to PDF, Word, Excel and other formats.

8. Please describe how this project will improve the efficiency of government operations (attach additional pages if needed)

Currently, the master file is kept in the project leader's department. If a file is needed, it is necessary to contact the specific department handling the project to receive the file or a copy of any documents needed. Access to an electronic filing system with OCR capabilities will allow quick access to information thus providing more efficient service. It will also reduce the cost of making and storing multiple copies.

9. Please describe any collaborative effort among multiple jurisdictions or political subdivisions related to this project (if applicable, attach additional pages if needed)

N/A

10. Please provide information on who will complete the project (in house personnel, outside contractor, combination of both, etc.)

This project will be completed through the efforts of City personnel, the software provider and the City's computer technical support provider.

11. Does the project involve the licensing, permitting or regulation of businesses, if yes then explain how the project or service will allow integration with the State of Nebraska's Business Portal and the one-stop online business regulation system.

No

III. Technical Information

1. Describe the hardware, software, and communications needed for this project and explain why these choices were made.

Input and Scanning Software – each site.

Optical Character Recognition of entire documents – only one needed. Provides capability to convert entire data groups of documents, or selected documents to full text data. This conversion facilitates full-text searching capabilities.

Document scanner – each site.

Retrieval and Display Software – based on concurrent usage.

The City would utilize current computers.

2. Address any technical issues with the proposed technology including:

- **Conformity with generally accepted industry standards. Projects which interface with state systems (such as distance learning systems) should also address NITC technical standards and guidelines.**
- **Compatibility with existing institutional and/or statewide infrastructure.**
- **Reliability, security and scalability (future needs for growth adaptation).**

The City would purchase a system with security features to allow the public to access records that meet State of Nebraska standards but not have access to confidential records (ie. Personnel records).

3. Describe how technical support will be provided.

City personnel will handle minor problems. The City contracts with a local computer technical support company to provide service on equipment and software. The software provider will provide software telephone and onsite support.

Project Description:

The City of South Sioux City would purchase an electronic filing system to be used by City departments. These departments are located in various sites throughout the South Sioux City area.

The current plan is to locate the electronic filing system scanning stations at City Hall, Public Works and the Police Department. Other departments would be added in the future. To achieve this goal, the following system would be needed:

Input and Scanning Software – each site.

OCR Flow – one unit. Provides capability to convert entire data groups of documents, or selected documents to full text data. This conversion facilitates full-text searching capabilities.

Document scanner – each site.

Retrieval and Display Software – based on concurrent use.

The City would utilize current computers. Each site would provide City personnel to scan and electronically file documents. No additional staff would be added. Such a system would give departments immediate access to records thus improving efficiency of local government operations. Future plans include allowing public access to records through the City website.

4. Describe how the Project will comply with the State's Technology Access Clause
<http://www.nitc.state.ne.us/standards/accessibility/tacfinal.htm>

We have read the access clause requirements and any application built with grant funds will comply.

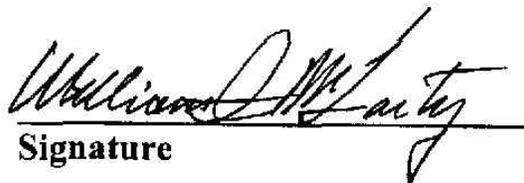
IV. CONTACT INFORMATION, SIGNATURE

Contact person for any questions regarding this application Constance J. Foust

Phone #402-494-7504

E-mail cfoust@southsiouxcity.org

Signed this 30 day of December, 2004.


Signature

Mayor
Title

Please Return to:

State Records Board
Suite 2300, State Capitol
P.O. Box 94608
Lincoln, NE 68509-4608
ATTACHMENT 1

NARRATIVE

The various departments of the City of South Sioux City are located in various sites throughout the city. To provide efficient service to our public, I have researched various electronic filing systems. Such systems have ranged from \$10,000 to \$50,000. The goal of this project is for the various City departments to retrieve documents efficiently with the ability to distribute them easily. For the future, the purchase of the system should include the ability for the public, through our website, to access public records while having security features for records (employee files, etc.) unavailable to the public.

The Digitech Systems Inc. system allows us to OCR entire documents to retrieve efficiently and has the capability for internet access. The price for this system has decreased \$2500 from prior estimate. A comparative system, eCopy, was priced at \$44,980.00 and did not have the capability of records access through our website. Both systems have local support professionals.

Plan for implementation of an electronic filing system:

- 1) Installation of equipment/software
- 2) Setup of files: active files and new files. Archived files would not be included at this time.
- 3) Scanning and filing documents of active and new files.
- 4) Train department heads and support staff on retrieval of documents.

Timeframe: Active files would be included in the electronic filing system within 6 months. New files would be included on an ongoing basis.

Attached is a copy of the estimate of the Digitech System and the project budget.

ESTIMATE
Digitech Systems Inc. Archival and Retrieval System Pricing Schedule

PaperFlow Lite (Input & Scanning Software-per seat or location) \$3,295.00
Includes (12 Months of software telephone and onsite support)

1. Very powerful batch scanning interface. Capability to upgrade to even more powerful versions of PaperFlow.
2. One High Speed Document Scanner
One Panasonic KV-S2026C-24 ppm simplex, and 42 duplex-USB, SCSI-3

OCR Flow (OCR of entire documents) only one needed for all \$1,995.00

1. Includes (12 Months of software telephone and onsite support)
2. Provides capability to covert entire datagroups of documents, or selected documents to full text data. This conversion facilitates full-text searching capabilities as well as exporting out to PDF, Word, Excel and other formats.

PaperVision Xpress (Retrieval and Display Software)-per concurrent seats. \$695.00

1. Includes (12 Months of software telephone and onsite support)

MSDE and all the needed optional Browser-based installation components. Scalable From a single computer to the largest enterprise solution.

Installation, Training, and Implementation:

1. Extensive on-site consulting for Network Setup (Software installation, administrator training, user setup, and server installation including network structure).
2. Setup and consulting for indexing and file project organization.
3. Extensive user training on PaperFlow and ImageSilo.

ELECTRONIC FILING SYSTEM BUDGET

\$15,355 **E. F. SYSTEM COST**

\$9885.00 PaperFlow Lite – 3 Locations @ \$3295 ea.

\$1995.00 OCR Flow

\$3475.00 PaperVision Xpress – 5 seats @ \$695 ea.

\$ 750 Computer Technical Support – 10 hours @ \$75 hr.

\$ 3,960 City Staff for project management, training, setup of files and initial data entry and training - 4 staff, 320 hrs.

\$20,045

OTHER

The City would provide a server for records management, NTSRVR2. The specifications for that server are:

CPU= 800 MHz Pentium III (redundant)

RAM= 1.5 GB

Operating System= Windows 2003 Server

Storage= 5 disk RAID drive system 27 GB free space left on drive system

Data on server is backed up nightly to mag tape with two week tape rotation.

If the City would need additional server space, they would have two options:

1. Purchase an additional server
2. Subscribe to ImageSilo, an offsite storage facility.

DRAFT
**Converting distance learning networks to a high bandwidth,
flexible infrastructure**

A White Paper
by the Staff of the Nebraska Information Technology Commission
and the Collaborative Aggregation Partnership (CAP)

December 10, 2004

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INTRODUCTION

This white paper has been drafted by the staff of the Nebraska Information Technology Commission and the members of the Collaborative Aggregation Partnership (CAP) in an attempt to communicate the history, challenges and uncertain future facing a majority of Nebraska's distance learning consortia as they approach the end of their distance learning contracts. This white paper will suggest an upgrade plan and sustainable networking topology that will rely upon cooperation among K-12 districts, ESUs, higher education partners, and selected agencies of the State of Nebraska. The goal of the project will be the establishment of a statewide synchronous videoconferencing network and a high bandwidth, wide area network for at least 270 of our 293 high schools and their 43 ESU, informal education and higher education partners.

Key assumptions include:

- That upgrading all 180 JPEG sites to H.264 video within a finite length of time (July 2006-August 2007), regardless of their original contract termination date, would be beneficial;
- That telephone companies will agree to forgive the remaining time on existing JPEG contracts with little or no penalty, providing that the capital investment for H.264 codes and school/aggregation routing equipment comes from outside funding sources and that the recurring revenue stream is roughly equivalent to the amount prior to conversion;
- That converting a commercial video data service (JPEG + T-1 data) to a high bandwidth (45Mbps), flexible use network where the school would be responsible for their choice of applications and apportioned bandwidth would be beneficial;
- That maintaining monthly recurring costs for the schools' flexible use, 45Mbps network services at a cost similar to the current statewide average (\$1325/month--video + \$216/month--T1 data = \$1541/month--full 45Mbps) would be beneficial;
- That proliferating the IP videoconferencing applications to elementary schools and middle schools, and the ability to interconnect schools with higher education, health care, Internet2 entities outside Nebraska, and other state agencies would be beneficial;
- That preserving the existing programmatic relationships between schools already using video distance learning and to convert the infrastructure to a flexibly provisioned data network capable of serving emerging technology applications would be beneficial;
- That using Network Nebraska, the statewide multi-purpose telecommunications backbone, to the fullest extent possible; delivering Internet1, Internet2, streaming video, IP videoconferencing, and secure data transfer to participating entities and/or groups of participating entities would be beneficial;
- That the level and amount of involvement and intervention by selected state agencies and Network Nebraska to reach the solution described will largely be determined by the local school districts, educational service units and distance learning consortia, upon mutual agreement by the affected state agencies.

BACKGROUND

Beginning in 1992, groups of Nebraska high schools began organizing themselves into eleven consortia for the purpose of delivering distance learning classes using interactive videoconferencing. With the addition of one new consortium in 2002, 12 regional distance education consortia in Nebraska now provide video and data services to approximately 270 high schools. The number of high schools within each consortium ranges in number from six (6) to 72. The consortia accepted state and federal grant funds to establish video distance learning, with an obligation to pay recurring costs over the life of a 10-year contract with telecommunications providers. The consortia are independent entities organized under inter-local agreements by participating school districts. Each has its own board of directors and distance learning director, acting as an executive officer. The distance learning directors' salaries are paid all, or in part, by the participating school districts or co-located Educational Service Unit.

The initial investment to build the distance education networks included about \$17.5 million of state lottery funds and federal funding. The Legislature, as recently as 2001, appropriated an additional \$3 million of state lottery funds to complete the system by adding another 44 high schools. Together, the 13 regional consortia spend over \$3 million per year for video service contracts with providers. These costs average approximately \$1325 per high school per month for the video service, ranging from \$900 per month to \$1800 per month.

Beginning with the fall semester of 2006 the original video service contracts for the distance learning consortia will start to expire. In July 2006, the contracts of the Southwest Nebraska Distance Learning Consortium, the Niobrara Valley TelePartnership, and the Northeast Nebraska Distance Learning Consortium will end, affecting 85 sites. Another six distance learning consortia service contracts will expire through 2010, affecting 95 more sites. The 21 districts served with MPEG2 technology already have ATM (asynchronous transfer mode) technology. An early technical assessment is that each of these 21 schools will need one codec card to upgrade their systems to compatibility with H.263/H.264 video technology. The 111 K-12 sites that have H.263/H.264 video over 100 Mbps cable-provided circuits are already upgraded. [See Appendix #3]

Currently, the 12 consortia utilize three different video technologies and are not able to provide interconnectivity between consortia. Nine telephone company-provided, JPEG consortia comprise 152 high schools and 28 ESU, higher education and informal education partners. All of these contracts for 45 Mbps (DS-3) circuits are due to expire between 2006 and 2010, with no replacement or upgrade funding models in place. Two telephone company-provided, MPEG2 consortia comprise 21 sites using 45 Mbps ATM infrastructure with contracts not due to expire until 2012. Each of these 21 sites will need an H.264 codec card inserted into their video compression device to assure their interoperability with the other distance learning high schools. One large cable company-provided consortium of 67 schools in southeast Nebraska, 21 other cable-based schools near Kearney, and eight Lincoln Public Schools sites have already upgraded to H.263/H.264 video technology using 100Mbps full duplex circuits. Also, almost every school and educational service unit is purchasing from 1.5Mbps to 3.0Mbps of Internet access over these same circuits as an additional charge.

The distance learning consortia offer a total of more than 600 classes per year, providing over 6,000 students and 2,300 adult learners with coursework including such subjects as foreign language, social sciences, mathematics, language arts, agriculture, and natural science. For rural Nebraska, especially, video distance learning is a key strategy for offsetting teacher shortages in certain subjects, offering advanced classes, and even providing elements of the core curriculum in order to maintain accreditation. The current distance learning systems concentrate on offering high school and college credit classes mainly to high school juniors and seniors, affecting nearly 10% of the students of this age group across the state, who opt to take video distance learning classes.

Distance learning holds even greater potential in the future with an integrated statewide system. A statewide synchronous video system would expand the opportunities for sharing classes among more schools across the State and accessing the instructional resources at a much greater number of higher education institutions. A statewide synchronous video system that is integrated with broadband access to Internet1 and Internet2 would open up a wealth of educational resources across the state and from the nation and world. The flexible bandwidth of the resulting network would allow teachers to download streaming video clips to supplement daily lessons, “dial-up” interactive video with experts and scientists from across the globe with minimal prior planning, participate in virtual field trips to distant sites (e.g. Smithsonian Institution, Mt. St. Helen’s), gain access to web-based eLearning resources, and conduct videoconferences between groups of students from all over the United States. [See Appendix #1]

SWOC ANALYSIS

Strengths of the Existing Distance Learning Consortia Arrangement

The strengths most often associated with the existing distance learning consortia are:

- Fiber optic cable was installed from the central telephone offices into a majority of the State’s K-12 high schools;
- Commercial video/data service contracts and interlocal agreements were pioneered;
- Large grants were procured to purchase and install distance learning equipment and infrastructure;
- High-quality video distance education has been delivered to schools on a reliable basis;
- Cooperation and interdependence are highly developed among participating school districts;
- Quality teaching resources have been shared with schools that would not otherwise be able to hire highly qualified teachers.

Weaknesses of the Existing Distance Learning Consortia Arrangement

The weaknesses most often associated with the existing distance learning consortia are:

- Course exchange is localized rather than regionalized or statewide, and prospective higher ed partners have difficulty reaching schools within their service areas;

- Bartering or trading of classes between schools creates inequity between larger schools (originating more than receiving) and smaller schools (receiving more than originating);
- Bell schedules and school calendars of schools involved in synchronous video instruction remain unsynchronized;
- Consortia boundaries and sizes do not correspond with any other political subdivision;
- Existing technology fails to take full advantage of the bandwidth available to schools;
- There were hardly any plans to create a locally sustainable upgrade plan at the outset of the original contract relationships.

Opportunities facing the Existing Distance Learning Consortia Arrangement

The opportunities most often associated with the future distance learning relationships are:

- The ability to develop a regional education cooperative that enables learners to accomplish seamless transfer between high school and college, and enables administrators to procure all the educational opportunities needed within the cooperative;
- The ability to connect additional schools or groups of schools to Network Nebraska for intrastate and interstate connectivity as well as cost savings from lower priced Internet;
- The ability to provide a common central scheduling or asset management software to streamline the process for reserving and activating video classrooms;
- The ability to enter into contracts that would provide flexible use of the existing bandwidth, capable of supporting multiple streams of data (including videoconferencing, streaming video, Internet1, Internet2 and other types of digital traffic) at the discretion of end users;
- The ability to regionalize resource allocation, technical support, network management, and load balancing of Internet bandwidth [See Appendix #2];
- The ability to negotiate early contract termination for at least four of the nine consortia (95 sites) allowing them to upgrade by 2007 to a fully interoperable video technology.

Challenges facing the Existing Distance Learning Consortia Arrangement

The challenges most often associated with the present distance learning consortia are:

- Current JPEG technology in nine consortia serving 180 K-12 and higher education sites operates at a very high bandwidth, is not efficient, is obsolete and will not be supported by the industry after existing contracts expire;
- Providers have indicated that there will be major price increases when the existing 10-year video service contracts expire in the nine JPEG consortia;
- Current network topology limits schools using JPEG technology to just one class at a time, with only a very small capacity available for Internet1 and Internet2;
- The cost of upgrading to new technology that makes more efficient use of network bandwidth is expensive;
- Incompatible video technologies and the lack of interconnections among distance learning consortia limit the sharing of classes to those schools within each regional consortium;
- Spreading IP videoconferencing technology to more elementary and middle schools and allowing it to proliferate within high schools will involve building LAN upgrades as well as campus infrastructure upgrades.

STATEWIDE SYNCHRONOUS VIDEO NETWORK

Current Status

The NITC has been working on the concept of a statewide synchronous video network since 1999. In fact, part of the Legislature's concern that led to formation of the NITC was the choice of incompatible technologies in some of the distance learning consortia. Originally, this was a problem of analog vs. digital technologies. Now it is a problem of incompatible JPEG, MPEG2, and H.263/H.264 video protocols. Through the efforts of the NITC and its work groups, the following steps have been taken to move Nebraska closer to the vision of a statewide system:

- NITC Video Compression Standards, February 2002 (moved Nebraska from four video standards to two);
- NITC Video Compression Standards, September 2004 (moved Nebraska from two video standards to one);
- The Statewide Synchronous Video Work Group, composed of K-12, higher education, state agencies, telehealth, and informal education, has met five times to further the goal of interoperability through implementation of the NITC video standards and discussion of related upgrade issues;
- NITC Synchronous Video Network Strategic Initiative / Strategic Plan;
- Special request to Congressman Osborne to obtain \$9.8 million for upgrade of the synchronous video network;
- November 5, 2004, meeting with distance learning consortia directors to discuss networking options.

In addition, the Nebraska Department of Education has submitted a biennial budget request for \$10 million per year to support a statewide synchronous video network and related activities.

Future Options

Three options are being considered.

- 1) Allow each consortium to determine its own upgrade path with no State assistance. The distance learning consortia are independent entities that can renegotiate their own rates, terms and conditions. If they comply with the NITC video standards, they would be able to establish connections to Network Nebraska or other consortia in the future in order to exchange classes or other content. The downside to this option is the risk that without aggregated or volume bidding, the overall costs may be greater than through a collective bargaining process that aggregates contracts. Another risk is that consortia will respond to higher rates by reducing the amount of bandwidth, which restricts the future potential uses of their networks. Individual school districts may respond to higher rates by dropping out. Total project costs, including technology upgrade for synchronous video, for the affected sites in the nine JPEG consortia have been estimated by providers to be \$55 million over seven years of a new contract, as compared to \$30 million over 10 years of the existing contracts. Existing sources of funding, such as federal e-rate monies and an average payment

of \$1541 per month from each high school, will cover some but not all of the \$55 million, leaving an estimated \$23-\$33 million in upfront costs for equipment and networking. Individual consortia would be free to apply for competitive USDA-RUS grants to help assist with each upgrade. Without any decrease in projected costs through negotiated bids or any financial support from outside sources, the estimated monthly recurring costs (before E-Rate) on the \$55 million project for each site would be \$4,020/month for 84 months. [See Network Funding Scenario #1]

- 2) Establish a statewide contract with no State funding assistance. Consortia have begun discussing having Network Nebraska (Collaborative Aggregation Partnership) act as a prime contractor to assist them in negotiating a replacement topology and achieving better cost-savings on service contracts. This would presumably help to attain lower project costs and achieve an integrated, statewide system within a much shorter time frame. It could lead to additional connections to Network Nebraska and further aggregation of Internet purchasing. Yet, without outside funding such as a Congressional appropriation or additional lottery funds, neither the upfront nor the recurring costs would be affordable for many districts. This would further delay the infrastructure necessary to deliver the program elements of an essential Nebraska education. Besides non-participating schools, other excluded features would include scheduling software and transport costs to participate in Network Nebraska. Negotiation of a statewide contract would likely reduce the estimated network and synchronous video upgrade costs (over Option 1) to the affected schools but still could result in a recurring cost that is unaffordable to many schools. [See Network Funding Scenario #2]
- 3) Establish a statewide contract with additional funding for a statewide system. A central contract would lower costs through increased competition and access to technical expertise during contract negotiations. A central contract would provide a technical design that supports a statewide system and enables the service contracts of schools to be co-terminus for future funding upgrades and renegotiation purposes. Additional funding would help to keep overall costs affordable for all districts, create more flexibility for their existing bandwidth, and insure their participation in Network Nebraska. The estimated cost of this option is:
 - \$9.3 million one-time costs to replace video codecs, add switches and routers to the school sites, and additional aggregation routers in each region;
 - an undetermined amount of upfront “buydown” costs that enable the 84-month, recurring costs to be affordable to participating schools;
 - Approximately \$1.5 million per year ongoing costs to offset the Internet transport and backbone costs so that each school will have equitable access to Internet resources;
 - Approximately \$2 million one-time costs to assist with critical Local Area Network upgrades for schools, on an as-needed basis;
 - Approximately \$1.5 million to obtain a statewide scheduling/management system for synchronous video distance learning and videoconferencing;
 - Approximately \$200,000 ongoing costs for training and support.

Option 3 contains all the advantages of Option 2 with additional upfront and ongoing support to make the network system affordable to the participating schools. [See Network Funding Scenario #3]

Recommended Approach

The third option of Establishing a statewide contract with additional funding is the only one that will insure a comprehensive, integrated, statewide system with the greatest number of schools involved.

Successful upgrade of the wide area network affecting 180 sites would ensure that technology could continue to play a major role in the delivery of educational services and content for the next seven years and beyond. As schools begin to exhaust the 45 Mbps bandwidth, new networking options could be explored and contracted at that point. Failure to upgrade would almost certainly “sentence” a great number of schools to the absolute minimum of Internet access, without the ability to access the software and data applications needed to deliver the essential elements of a Nebraska education.

NETWORK UPGRADE PLAN

The Network Upgrade Plan includes a proposed timeline of events, a discussion of the roles of the involved entities, and a possible funding portfolio to accomplish the project.

Proposed Timeline of Events

1. December 10, 2004-January 31, 2005: Input and recommended revisions to this white paper are received from the distance learning consortia, ESU-NOC committee, higher education and informal education partners, and the Statewide Synchronous Video Network Work Group as well as from the consortium boards and member schools.
2. January 31-February 4, 2005: The staff of the NITC revises the white paper.
3. February 8, 2005: The NITC Technical Panel recommends the white paper as the preferred approach to accomplishing a wide area, high bandwidth, flexibly provisioned network capable of delivering a number of services to Nebraska education entities.
4. February 9-28, 2005: The CAP holds pre-project meetings with the distance learning consortia directors, ESU-NOC members, and the principal telecommunications providers to review the network topologies, cost structure, lines of demarcation, and bandwidth/QoS management strategies.
5. February-May, 2005: The Nebraska Department of Education communicates updates relative to its legislative biennial budget request, as well as progress on securing other alternative funding sources to supplement the project.
6. March 1-July 30, 2005: The DAS-Division of Communications, in partnership with CAP, ESUs, and distance learning consortia, construct and release an RFP and bid process that provides for a master purchasing contract for wide area, high bandwidth, flexibly provisioned network circuits to all affected entities.
7. August 1, 2005: Bids are awarded by DAS-Division of Communications for a master purchasing contract for the 45 Mbps tail circuits that will be activated from 2006-07.

8. November-December, 2005: Schools from five consortia areas (Southwest DLC, Niobrara Valley TP, North Central DLC, Northeast Nebraska DLC, Northeast Nebraska Learners Academy) file e-Rate form 471s for “Internet Access” from the Network Nebraska master contract, effective July 1, 2006.
9. May-August, 2006: Approximately 85 H.264 codecs, 85 building routers, and two aggregation routers are installed in the first wave of K-12 and higher education sites, with DS-3 upgrades occurring from July 1-August 15, 2006.
10. July-August, 2006: Twenty-one H.264 cards are installed in the Mac500 codecs of the Sandhills Technology Education Partnership and the Crossroads Consortium.
11. November-December, 2006: Schools from four consortia areas (Central NE DLC, Western NE DLC, Eastern NE DLC, Tri-Valley North DEC) file e-Rate form 471s for “Internet Access” from the Network Nebraska master contract, effective July 1, 2007.
12. May-August, 2007: Approximately 95 H.264 codecs, 95 building routers, and three aggregation routers are installed in the second wave of K-12 and higher education sites, with DS-3 upgrades occurring from July 1-August 15, 2007.
13. September 1, 2007: Over 300 education sites are united by a high bandwidth, wide area network, capable of point-to-point and point-to-multipoint IP videoconferencing, between schools and from schools to other entities.

Roles of the Involved Entities

The **Local Education Agency (LEA)** [e.g. school, college] is the end-user of the services and bandwidth available over the network. Responsibilities of the LEA would include maintaining a secure Local Area Network (LAN) extending to the Ethernet port on the router, including but not limited to effective virus protection, current Operating Systems with updates on all devices, properly licensed software, uninterruptible power supplies, and device security. The LEA will also maintain its own videoconferencing and distance learning equipment or contract for maintenance on the equipment. The LEA will also own and maintain its building router using contracted vendor maintenance. The maintenance includes a current operating system, up-to-date access lists, appropriate reflective access lists, and redundancy of core devices to the extent possible. The LEAs will have representation on the Network Nebraska Advisory Group (NNAG).

The **Distance Learning Consortia (DLC)** directors would be the primary interface between the network upgrade project and the end-users. At the outset, their responsibilities would include interpreting and communicating the future capabilities and functionality of the network upgrade project, implicated costs, and applications available to the school districts and administrators. DLC directors would be responsible for developing training materials on the new IP video technology for school district staff and teachers. DLC directors would also help: Develop specifications and guidelines for the purchase and provisioning of a statewide asset management system for monitoring of videoconferencing facilities; develop specifications and guidelines for a web-based event clearinghouse of educational programs and opportunities; and guide schools with the purchase and deployment of additional IP video devices. The DLC directors would eventually evolve into coordinators of digital content, operating as the programmatic representatives for area schools. The DLC directors would have representation on the Network Nebraska Advisory Group (NNAG).

The **Educational Service Unit—Regional Network Operations Centers (ESU-RNOC)** would be the interfaces between the high bandwidth, wide area networks and Network Nebraska. The ESU-RNOCs would extend service contracts to LEAs to help manage their bandwidth and resolve issues related to Network Nebraska usage. The ESU-RNOC would manage WAN bandwidth usage/traffic within the regional aggregation. The ESU-RNOC would manage/limit bandwidth usage/traffic when leaving the regional aggregation to traverse Network Nebraska. The ESU-RNOC would have the authority to disconnect a school that is negatively impacting the network as a result of viruses, denial-of-service attacks, etc. The ESU-RNOC would provide consultation and support to LEAs as mutually agreed. The ESU-RNOC would assure compliance with all contractual terms and conditions related to access and transmission on Network Nebraska. The ESU-RNOC would have representation on the Network Nebraska Advisory Group (NNAG).

The **University of Nebraska Computing Services Network (UNCSN)** would be the main contact between the ESU-RNOCs and the service providers. The staff of the UNCSN would receive requests for service and convert them into service orders, helping to insure that the requirements of the customer are being met by the primary and secondary providers. The UNCSN would be the aggregator of Internet demand and purchaser of Internet service for the public entities who are customers of Network Nebraska. The UNCSN would also handle the routing of traffic to Internet2 among eligible entities. The UNCSN would staff the Level 2 Network Operations Center for education entities on Network Nebraska. The UNCSN would host the Network Nebraska website, www.networknebraska.net. The UNCSN would participate in the Network Nebraska Advisory Group (NNAG).

The **Department of Administrative Services—Division of Communications (DAS-DOC)** would be the main author of the Request for Proposal (RFP), with input and specifications provided by the DLCs and ESUs. The DAS-DOC would negotiate the master purchasing contract, allowing school districts or groups of school districts, to purchase services from the master purchasing contract. These services would include Internet access and transport from the major nodes (Norfolk, Omaha, Lincoln, Grand Island, Kearney, North Platte, Scottsbluff) of the statewide network and 45Mbps Internet access through high bandwidth, wide area networking circuits on a regional basis. The DAS-DOC would charge an administrative fee to end users or groups of end users for use of its services. This administrative fee is regulated by the Federal government and must be the same fee charged to any DAS-DOC customer; local, state, or Federal. The fee is currently 10% and cannot exceed actual costs. The DAS-DOC would participate in the Network Nebraska Advisory Group (NNAG).

Nebraska Educational Telecommunications (NET) would staff the Level 1 help desk and Network Information Center for Network Nebraska, answering the 1-888-NET-NEBR (638-6327) toll-free number. NET staff can assist with the master purchase of the building codec and router equipment as well as consulting on room integration issues. NET would be a likely provider of digital content over the terrestrial and satellite transmitter network. NET would participate in the Network Nebraska Advisory Group (NNAG).

The **Nebraska Information Technology Commission (NITC)** would act as a facilitator of the process, providing staff assistance as needed to arrange and hold meetings, build consensus, draft

documents, communicate with involved entities, and provide briefings to potential users, stakeholders, providers, and policy makers. The Legislature created the NITC to guide the State's investments in information technology. The NITC Technical Panel has recommended video compression protocol standards to accomplish a statewide synchronous videoconferencing network and can respond to subsequent requests for other networking standards. The NITC would provide staff support for, and participate in the Network Nebraska Advisory Group (NNAG).

The **Nebraska Department of Education** (NDE) would offer policy and programmatic guidance to make sure that the resulting network capacity and videoconferencing system will be able to offer enough educational opportunities for schools to deliver the elements of an essential Nebraska education, as described by the State Board of Education. The NDE would take the State lead on helping to secure funding to make the project feasible. NDE would offer policy and funding guidance on matters related to E-Rate eligibility. The NDE would participate in the Network Nebraska Advisory Group (NNAG).

The **Nebraska Public Service Commission** (PSC) would offer policy guidance and consultation to make sure that the services and pricing offered by the telecommunications providers comply with the PSC telecommunications rules and regulations. The role of the PSC is to make sure that every available service and pricing alternative is being considered by the industry in order to improve the project affordability for Nebraska schools. The PSC would participate in the Network Nebraska Advisory Group (NNAG).

The **Network Nebraska Advisory Group** (NNAG) would provide the conduit for LEAs, DLC directors, and ESU-NROC staff to provide input to Network Nebraska and the members of the Collaborative Aggregation Partnership. Quarterly face-to-face or videoconferencing meetings would be held to discuss upcoming events, issues, and performance of the network. Membership would be open to any end-user or customer of Network Nebraska. The NITC would charter the Network Nebraska Advisory Group with a list of responsibilities and duties.

Funding Portfolio

Providing a feasible funding portfolio is a critically important piece of this project. However, many variables cannot be defined at this juncture. The actual and eventual costs of equipment and networking cannot be known without performing a bid process. So, scenarios can only be presented at this time based upon the industry's best estimates.

Notes: Site router, codec and scheduling software are likely to be ineligible for E-Rate reimbursement and therefore must be paid for at the outset of the project or amortized over the life of the contract. Higher education and informal education partners are ineligible for E-Rate and state K-12 funding, therefore their upgrade costs must be taken into consideration.

The NDE budget adjustment document outlined project estimates for the equipment, maintenance, training, and management of the system. These numbers would vary considerably

by the time of implementation, depending upon amortization and negotiation of a master purchasing contract.

Statewide Synchronous Video Network

Equipment Costs

Account Description by item	FY 06 Adj Req	FY 07 Adj Req	Est. Ongoing
School Site Router Hardware	\$ 800,000	\$ 800,000	\$ 0
School Site Router Maintenance	\$ 250,000	\$ 250,000	\$ 250,000
Aggregation Point Router Hardware	\$ 1,300,000	\$ 0	\$ 0
Aggregation Router Maintenance	\$ 200,000	\$ 200,000	\$ 200,000
School Site Codec Hardware	\$ 1,500,000	\$ 1,500,000	\$ 0
School site Codec Maintenance	\$ 200,000	\$ 200,000	\$ 200,000
Ancillary Equipment/LAN upgrades	\$ 1,200,000	\$ 1,700,000	\$ 500,000
Scheduling/Management system	\$ 745,000	\$ 725,000	\$ 350,000
Training and Support	\$ 200,000	\$ 200,000	\$ 200,000
Subtotal	\$ 6,395,000	\$ 5,575,000	\$ 1,700,000

Account Description by item	FY 06-07 Adj Req	Est. Ongoing	Responsibility
School Site Router Hardware	\$ 1,600,000	\$ 0	Lottery Fund
School Site Router Maintenance	\$ 500,000	\$ 250,000	LEA
Aggregation Point Router Hardware	\$ 1,300,000	\$ 0	Lottery Fund
Aggregation Router Maintenance	\$ 400,000	\$ 200,000	Network NE
School Site Codec Hardware	\$ 3,000,000	\$ 0	Lottery Fund
School site Codec Maintenance	\$ 400,000	\$ 200,000	LEA
Ancillary Equipment/LAN upgrades	\$ 2,900,000	\$ 500,000	Lottery Fund
Scheduling/Management system	\$ 1,470,000	\$ 350,000	Lottery Fund
Training and Support	\$ 400,000	\$ 200,000	ESUs/DLC
Subtotal	\$11,970,000	\$ 1,700,000	

Account Description by Source	FY 06-07 Adj Req	Est. Ongoing
Lottery Fund	\$10,270,000	\$ 850,000
Network Nebraska	\$ 400,000	\$ 200,000
Local Education Agencies	\$ 900,000	\$ 450,000 (\$228/month/site)
ESUs/DLC Directors	\$ 400,000	\$ 200,000
Subtotal	\$11,970,000	\$ 1,700,000

Statewide Synchronous Video Network

Networking Costs

<u>Account Description by Service</u>	<u>Total Contract (7 yrs)</u>
Qwest Network Price	\$ 30,634,227
NIN Network Price	\$ 15,400,000
Subtotal	\$ 46,034,227

Network Funding Scenario #1 (assuming full estimated cost of network, \$3342/month local contributions, no time value of money, with no buydown)

<u>Account Description by Source</u>	<u>7yr Contract</u>
Total Estimated Network Costs	\$ 46,034,227
Est. Local Contribution Before E-Rate (\$3342/mnth x 84 mnths x 164 sites) -	<u>\$ 46,034,227</u>
Gap in Network Funding	\$ 0

Network Funding Scenario #2 (assuming 20% discounted cost of network, \$2673/month local contributions, no time value of money, with no buydown)

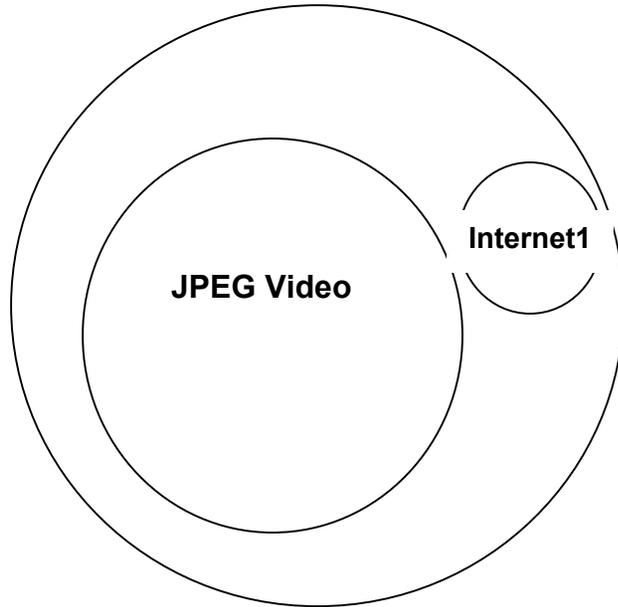
<u>Account Description by Source</u>	<u>7yr Contract</u>
Total Estimated Network Costs	\$ 36,827,377
Est. Local Contribution Before E-Rate (\$2673/mnth x 84 mnths x 164 sites) -	<u>\$ 36,827,377</u>
Gap in Network Funding	\$ 0

Network Funding Scenario #3 (assuming 20% discounted cost of network, \$1541/month local contributions, leveraging time value of money, with buydown)

<u>Account Description by Source</u>	<u>7yr Contract</u>
Total Estimated Network Costs	\$ 36,827,377
Est. Local Contribution Before E-Rate (\$1541/mnth x 84 mnths x 164 sites) -	<u>\$ 21,228,816</u>
Gap in Network Funding	\$ 15,598,561
Credit for Time Value of Money (9% x 7 yrs = Future Value Factor of 1.8280)-	<u>\$ 7,065,431</u>
Difference (Buydown)	\$ 8,533,130
Less 60% E-Rate Discount Upfront -	<u>\$ 5,119,877</u>
Cash Upfront	\$ 3,413,253

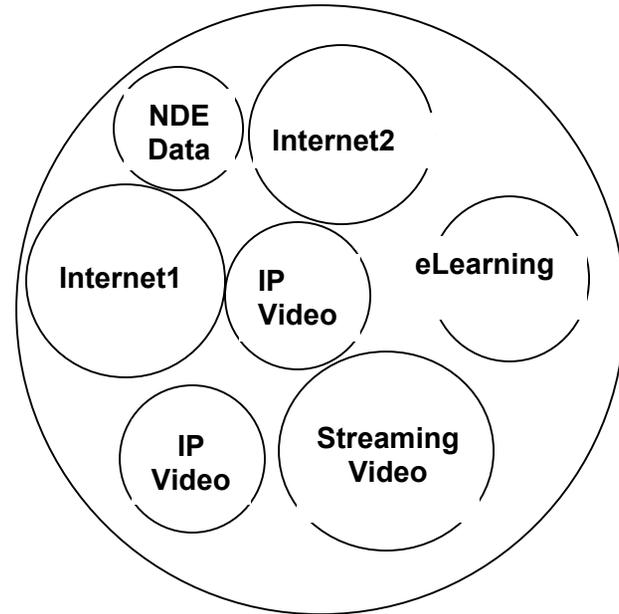
Cash Upfront would have to come from a combination of Local, State, and Federal sources.

**45 megabit DS-3 fiber
(old JPEG and T-1 Internet)**



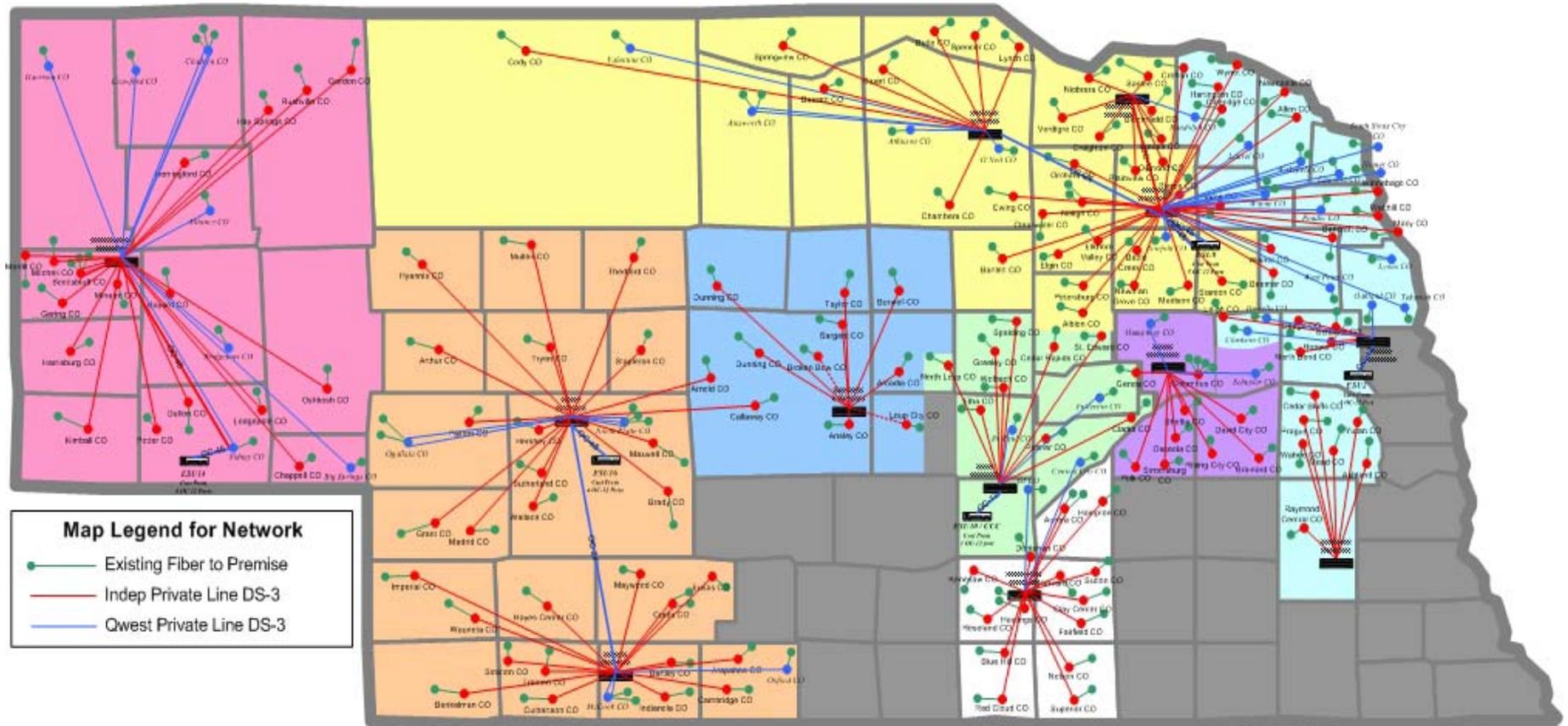
**\$1325/month JPEG video
\$ 216/month T-1 Internet**

**45 megabit DS-3 fiber
(new Flexible Use)**



**\$1541/month full use of
fiber capacity for IP
Video, Internet1,
Internet2,
streaming video,
eLearning, NDE data**

Technology Conversion for Nebraska Education Network [Formerly the Distance Learning Network] Nebraska's Telephone / Telecommunications Industry



High School or Community-School/School	Bandwidth	Video Protocol	ESU Area	Dist. Learning Consortium	Contract Expires	Community College Area
Aurora	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Aurora-Edgerton Explorit Center	45 Mbps	JPEG				Central CC
Blue Hill	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Central City	45 Mbps	JPEG	7	CNDEC	2008	Central CC
Clay Center	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Doniphan-Doniphan/Trumbull	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Fairfield-South Central Unified 5	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Hampton	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Harvard	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Hastings-Adams Central	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Hastings-Central Community College	45 Mbps	JPEG				Central CC
Hastings-ESU 9	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Kenesaw	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Nelson-South Central Unified 5	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Red Cloud	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Roseland-Silver Lake	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Superior-South Central NE Unified 5	45 Mbps	JPEG	9	CNDEC	2008	Central CC
Sutton	45 Mbps	JPEG	9	CNDEC	2008	Central CC
<i>Giltner (NO DL)</i>	1.5 Mbps		9			Central CC
<i>Hastings Senior High (NO DL)</i>	1.5 Mbps		9			Central CC
Brainard-East Butler	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Columbus	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Columbus-Central Community College	45 Mbps	MPEG2	7			Central CC
Columbus-ESU 7	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Columbus-Lakeview	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
David City	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Genoa-Twin River H.S.	1.5 Mbps		7			Central CC
Humphrey	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Osceola	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Polk-High Plains	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Rising City	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Schuyler Central	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Shelby	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Stromsburg-Cross County	45 Mbps	MPEG2	7	Crossroads	2012	Central CC
Allen	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Ashland-Ashland/Greenwood	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Bancroft-Bancroft/Rosalie	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Cedar Bluffs	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Clarkson	45 Mbps	JPEG	7	ENDLC	2009	Central CC
Coleridge	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Crofton	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Dodge	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
Emerson-Emerson/Hubbard	3 Mbps	H.264	1	ENDLC	2009	Northeast CC
<i>Fremont (NO DL)</i>	1.5 Mbps		2	ENDLC	2009	Southeast CC
Fremont-ESU 2	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Hartington	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Homer	3 Mbps	H.264	1	ENDLC	2009	Northeast CC
Hooper-Logan View	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
Howells	45 Mbps	JPEG	7	ENDLC	2009	Central CC
Laurel-Laurel/Concord	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Leigh	45 Mbps	JPEG	2	ENDLC	2009	Central CC
Lyons-Lyons/Decatur Northeast	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Macy-Umo n ho n Nation	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Mead	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Newcastle	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
North Bend	45 Mbps	JPEG	2	ENDLC	2009	Metro CC

Oakland-Oakland/Craig	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Omaha-Metropolitan Community College	45 Mbps	JPEG				Metro CC
Pender	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Prague	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Raymond-Raymond Central	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Scribner-Scribner/Snyder	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
South Sioux City	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Tekamah-Tekamah/Herman	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Wahoo	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
Wakefield	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Wakefield-ESU 1	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Walthill	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Wayne	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
West Point	45 Mbps	JPEG	2	ENDLC	2009	Northeast CC
Winnebago	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Winside	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Wisner-Wisner/Pilger	45 Mbps	JPEG	2	ENDLC	2009	Metro CC
Wynot	45 Mbps	JPEG	1	ENDLC	2009	Northeast CC
Yutan	45 Mbps	JPEG	2	ENDLC	2009	Southeast CC
<i>Ponca (NO DL)</i>	1.5 Mbps		1			Northeast CC
Lincoln-Bryan Learning Community	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-East H.S.	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Lincoln H.S.	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-LPSDO	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Northeast H.S.	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-North Star H.S.	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Southeast H.S.	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Southwest H.S.	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Lincoln-Science Focus School	100 Mbps	H.264	18	LDLC	2014	Southeast CC
Atkinson-West Holt Rural H.S.	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Bartlett-Wheeler Central	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Butte-West Boyd Unified	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Chambers	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Clearwater-NE Unified District 1	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Elgin	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Ewing	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Lynch-Unified Niobrara/Lynch	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Neligh-ESU 8	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
O'Neill	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Orchard-NE Unified District 1	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Petersburg-Boone Central	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Spencer-West Boyd Unified	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Stuart	45 Mbps	JPEG	8	NVTP	2006	Northeast CC
Ainsworth	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Ainsworth-ESU 17	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Bassett-Rock County H.S.	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Cody-Cody/Kilgore	45 Mbps	JPEG	17	NCDLC	2008	Mid-Plains CC
Springview-Keya Paha	45 Mbps	JPEG	17	NCDLC	2008	Northeast CC
Valentine	45 Mbps	JPEG	17	NCDLC	2008	Mid-Plains CC
Bloomfield	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC
Creighton	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC
Niobrara-Unified Niobrara/Lynch	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC
Osmond	45 Mbps	JPEG	8	NE.NEDLC	2006	Northeast CC
Plainview	45 Mbps	JPEG	8	NE.NEDLC	2006	Northeast CC
Randolph	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC
Santee	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC
Verdigre-NE Unified District 1	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC

Wausa	45 Mbps	JPEG	1	NE.NEDLC	2006	Northeast CC
Albion-Boone Central	45 Mbps	JPEG	7	NE. NELA	2007	Central CC
Battle Creek	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Madison	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Neligh-Neligh/Oakdale	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Newman Grove	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Norfolk-Northeast Community College	45 Mbps	JPEG			2007	Northeast CC
Norfolk-Northeast Community College	45 Mbps	JPEG			2007	Northeast CC
Norfolk-Northeast Community College	45 Mbps	JPEG			2007	Northeast CC
Norfolk-Northeast Nebraska Arts Council	45 Mbps	JPEG			2007	Northeast CC
Norfolk	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Pierce	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Stanton	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Tilden-Elkhorn Valley	45 Mbps	JPEG	8	NE. NELA	2007	Northeast CC
Wayne-Wayne State College	45 Mbps	JPEG			2007	
Wayne-Wayne State College	45 Mbps	JPEG			2007	
Ansley	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Arcadia	45 Mbps	MPEG2	10	STEP	2012	Central CC
Broken Bow	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Burwell	45 Mbps	MPEG2	10	STEP	2012	Northeast CC
Dunning	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Loup City	45 Mbps	MPEG2	10	STEP	2012	Central CC
Merna-Anselmo/Merna	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Sargent	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Taylor-Loup County H.S.	45 Mbps	MPEG2	10	STEP	2012	Mid-Plains CC
Adams-Freeman H.S.	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Arlington	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Auburn-ESU 4	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Beatrice	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Beatrice-ESU 5	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Beatrice-Homestead National Monument	100 Mbps	H.264			2009	Southeast CC
Beatrice-Southeast Community College	100 Mbps	H.264			2009	Southeast CC
Bennington	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Blair	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Bruning-Bruning/Davenport H.S.	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Chester-Thayer Central M.S.	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Cook-Nemaha Valley	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Crete	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Davenport-Bruning/Davenport M.S.	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Dawson-Dawson/Verdon	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Daykin-Meridian	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
DeWitt-TriCounty	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Deshler	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Dorchester	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Elkhorn	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Exeter-Exeter/Milligan H.S.	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Fairbury	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Fairmont-Fillmore Central M.S.	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Falls City	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Firth-Norris	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Friend	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Geneva-Fillmore Central H.S.	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Gretna	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Hebron-Thayer Central H.S.	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Henderson-Heartland	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Humboldt-Humboldt/Table Rock/Steinauer	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Johnson-Johnson/Brock	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Lewiston	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC

Lincoln-NDE	100 Mbps	H.264			2009	
Lincoln-Southeast Community College	100 Mbps	H.264			2009	Southeast CC
Louisville	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Malcolm	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
McCool Junction	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Milford	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Milford-ESU 6	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Milford-Southeast Community College	100 Mbps	H.264			2009	Southeast CC
Murdock-Elmwood/Murdock	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Murray-Conestoga	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Nebraska City	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Nebraska City-Visually Impaired	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Odell-Diller/Odell Secondary	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
Omaha-ESU 3	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Omaha-Henry Doorly Zoo	100 Mbps	H.264				Metro CC
Omaha-Millard North	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Omaha-Millard South	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Omaha-Millard West	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Omaha-Westside Dist. 66	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Palmyra	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Pawnee City	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Plattsmouth	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Seward	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Shickley	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Stella-SE Consolidated	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Sterling	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Syracuse-Syracuse/Dunbar/Avoca	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Tecumseh	100 Mbps	H.264	4	SE.NEDLC	2009	Southeast CC
Utica-Centennial	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Valley-Waterloo/Valley	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Waterloo-Waterloo/Valley	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Waverly	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Weeping Water	100 Mbps	H.264	3	SE.NEDLC	2009	Metro CC
Wilber-Clatonia	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
Wymore-Southern H.S.	100 Mbps	H.264	5	SE.NEDLC	2009	Southeast CC
York	100 Mbps	H.264	6	SE.NEDLC	2009	Southeast CC
<i>Auburn (NO DL)</i>	1.5 Mbps		4			Southeast CC
<i>Bellevue East (NO DL)</i>	1.5 Mbps		3			Metro CC
<i>Bellevue West (NO DL)</i>	1.5 Mbps		3			Metro CC
<i>Fort Calhoun (NO DL)</i>	1.5 Mbps		3			Metro CC
<i>Omaha Benson (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Omaha Bryan (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Omaha Burke (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Omaha Central (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Omaha North (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Omaha Northwest (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Omaha South (NO DL)</i>	1.5 Mbps		19			Metro CC
<i>Papillion-LaVista (NO DL)</i>	100 Mbps		3	SE.NEDLC	2009	Metro CC
<i>Papillion-LaVista-South (NO DL)</i>	100 Mbps		3	SE.NEDLC	2009	Metro CC
<i>Ralston (NO DL)</i>	100 Mbps		3	SE.NEDLC	2009	Metro CC
<i>Springfield-South Darpy Dist. 46 (NO DL)</i>	1.5 Mbps		3			Metro CC
Arapahoe	45 Mbps	JPEG	11	SW.NEDLC	2006	Central CC
Arnold	45 Mbps	JPEG	10	SW.NEDLC	2006	Mid-Plains CC
Arthur-Arthur County H.S.	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Bartley-Republican/Twin Valley	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Benkelman-Dundy County H.S.	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Brady	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Callaway	45 Mbps	JPEG	10	SW.NEDLC	2006	Mid-Plains CC

Cambridge	45 Mbps	JPEG	11	SW.NEDLC	2006	Central CC
Culbertson-Hitchcock Co Unified	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Curtis-Medicine Valley	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Curtis-NE College of Tech Ag	45 Mbps	JPEG				
Eustis-Eustis/Farnam	45 Mbps	JPEG	11	SW.NEDLC	2006	Mid-Plains CC
Grant	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Hayes Center	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Hershey	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Hyannis	45 Mbps	JPEG	16	SW.NEDLC	2006	Western CC
Imperial-Chase County H.S.	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Indianola-Republican/Twin Valley	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Madrid-Wheatland	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Maxwell	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Maywood	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
McCook	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
McCook-MidPlainsCC	45 Mbps	JPEG				Mid-Plains CC
McCook-MidPlainsCC	45 Mbps	JPEG				Mid-Plains CC
Mullen	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
North Platte	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
North Platte-ESU 16	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
North Platte-MidPlains CC	45 Mbps	JPEG				Mid-Plains CC
North Platte-MidPlains CC	45 Mbps	JPEG				Mid-Plains CC
North Platte-UN West Central Research	45 Mbps	JPEG				
Ogallala	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Ogallala-ESU 16	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Oxford-Southern Valley	45 Mbps	JPEG	11	SW.NEDLC	2006	Central CC
Paxton-Consolidated	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Stapleton	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Sutherland	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Theford	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Trenton-ESU 15	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Trenton-Hitchcock Co. Unified	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Tryon-McPherson County H.S.	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Wallace	45 Mbps	JPEG	16	SW.NEDLC	2006	Mid-Plains CC
Wauneta-Wauneta/Palisade	45 Mbps	JPEG	15	SW.NEDLC	2006	Mid-Plains CC
Cedar Rapids	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Elba	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Clarks-High Plains Community M.S.	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Columbus-ESU 7	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Fullerton	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Greeley-Greeley/Wolbach	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Scotia-North Loup Scotia	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Palmer	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Spalding	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
St. Edward	45 Mbps	JPEG	7	TVDEC-N	2009	Central CC
Wolbach-Greeley/Wolbach	45 Mbps	JPEG	10	TVDEC-N	2009	Central CC
Alma	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Amherst	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Axtell	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Bertrand	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Cairo-Centura H.S.	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Cozad	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Elm Creek	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Elwood	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Franklin	100 Mbps	H.264	11	TVDEC-S	2009	Central CC
Gibbon	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Gothenburg	100 Mbps	H.264	10	TVDEC-S	2009	Central CC
Grand Island (NO DL)	1.5 Mbps		10			Central CC

Appendix 3

336 Sites affected by network upgrade

December 10, 2004

Grand Island-Central Community College	100 Mbps	H.264					Central CC
Hildreth-Wilcox/Hildreth	100 Mbps	H.264	11	TVDEC-S	2009		Central CC
Holdrege	100 Mbps	H.264	11	TVDEC-S	2009		Central CC
Holdrege-ESU 11	100 Mbps	H.264	11	TVDEC-S	2009		Central CC
Kearney	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Kearney-ESU 10	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Kearney-UN-Kearney	100 Mbps	H.264					
Lexington	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Litchfield	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Loomis	100 Mbps	H.264	11	TVDEC-S	2009		Central CC
Minden	100 Mbps	H.264	11	TVDEC-S	2009		Central CC
Ord	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Overton	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Pleasanton	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Ravenna	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Shelton	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
St. Paul	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Sumner-Sumner/Eddyville/Miller H.S.	100 Mbps	H.264	10	TVDEC-S	2009		Central CC
Wilcox-Wilcox/Hildreth	100 Mbps	H.264	11	TVDEC-S	2009		Central CC
<i>Grand Island NW (NO DL)</i>	1.5 Mbps		10				Central CC
<i>Wood River (NO DL)</i>	1.5 Mbps		10				Central CC
Alliance	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Bayard	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Bridgeport	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Chadron	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Chadron-Chadron State College	45 Mbps	JPEG					Western CC
Chappell-Creek Valley	45 Mbps	JPEG	14	WNDLC	2009		Western CC
Crawford	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Dalton-Leyton H.S.	45 Mbps	JPEG	14	WNDLC	2009		Western CC
Gering	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Gordon	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Harrisburg-Banner County H.S.	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Harrison-Sioux County H.S.	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Hay Springs	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Hemingford	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Kimball	45 Mbps	JPEG	14	WNDLC	2009		Western CC
Lodgepole-Creek Valley	45 Mbps	JPEG	14	WNDLC	2009		Western CC
Minatare	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Mitchell	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Morrill	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Oshkosh-Garden County H.S.	45 Mbps	JPEG	14	WNDLC	2009		Western CC
Potter-Potter/Dix H.S.	45 Mbps	JPEG	14	WNDLC	2009		Western CC
Rushville	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Scottsbluff	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Scottsbluff-ESU 13	45 Mbps	JPEG	13	WNDLC	2009		Western CC
Scottsbluff-Western NE Community College	45 Mbps	JPEG					Western CC
Sidney-ESU 14	45 Mbps	JPEG	14	WNDLC	2009		Western CC
<i>Sidney (NO DL)</i>	1.5 Mbps		14				Western CC
<i>Big Springs-South Platte H.S. (NO DL)</i>	1.5 Mbps		14				Western CC

Summary Data

Number of H.S. with 45 Mbps JPEG	152	
Number of H.S. with 45 Mbps MPEG2	20	
Number of H.S. with 100 Mbps	97	
Number of H.S. with 1.5-3.0 Mbps	23	
Number of ESUs with 45 Mbps JPEG	11	
Number of ESUs with 45 Mbps MPEG2	1	
Number of ESUs with 100 Mbps	6	
Number of Higher Ed/Informal Ed Sites	26	(17 JPEG, 1 MPEG2, 8 H.264)
	336	

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North Central Distance Learning Consortium	NCDLC	Nigel Buss	nbuss@esu8.org
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